An Extract of a Letter from Mr. J. Flamſteed Aſtr. Reg. *and* Reg. Soc. S. *giving his calculation of the Eclipſes of Jupiters Satellites for the Year* 1687. *Together with a Table of the Parallaxes of the Orb, and the Ephemeris of Jupiters* Geocentric *Place for the ſame Year; to which is added an Obſervation of the Eclipſe of the Moon, Novemb.* 30, 1695. *made at* Liſbon, *and Mr.* Flamſteed's *own Obſervation of the Eclipſe of Jupiter by the Moon on March* 31*th. paſt.*

I Give you here a Catalogue of all the Eclipſes of ♃ s Satellites, for the enſuing year 1687. and together with it 2 Tables, one of his Geocentrick places, the other of the Parallaxes of his Orbit to every day in the ſaid Year. This is the 4*th.* Catalogue I have got publiſhed in the Tranſactions. With the 1*ſt.* printed *Dec.* 1683. *Num.* 154. I ſhewed their uſes, and how by their help the difference of Longitude, betwixt any two places on the Earth, where they ſhould be obſerved, might be determined. And I Taught a Method of finding out within what ſpace on our Globe any of them would be obſervable: This was done in Engliſh for the uſe of our Country-men. Next Year in *December* 1684. I repeated thoſe Directions in Latin *Num.* 165. *pag.* 760. for the benefit of Forreigners. In the two Tranſactions of *Decem.* 85. *Num.* 177 and 178, with the Catalogue of Eclipſes I deſcribed a ſmall Inſtrument, and ſhewed by the help of it, the ſaid Catalogue, and the Tables of ♃ Geocentrick places and Parallexes, the appearances of the Satellites at any time within the compaſs of that Year might be diſcovered and delineated; if therefore the Reader deſire to be informed concerning the uſe of the Catalogue and Tables herewith printed,

ed, he may repair to the above-mentioned Tranſactions. I ſhall only add.

That whereas for the two Years laſt paſt, the *4th.* Satellit has not heen Eclipſed. As this Year enters, it begins to fall into ♄s ſhadow, and that its Eclipſe will again be obſervable for the 4 next Years. The firſt that happens *Feb.* 2. in the Morning will be well worth the attention of the Curious; in that its duration is the ſhorteſt of any that follow it this Year; both the Ingreſſe and Emerſion are Viſible with us, as are all thoſe in the Catalogue which are alike marked with an Aſterick (*) which if they ſhall be exactly obſerued, may ſerue to determine the place of the Node of the orbit of ♄ *s* Satellits, and its Inclination to the orbit of ♄, by comparing the obſeruation either with ſuch as wee haue already obtained, or as may be made hereafter.

In my laſt obſeruations, the Eclipſes of the *2d* and *3d* Satellit have anticipated my Calculations ſomething more than I expected in ſo ſhort a time; of which I thought it conuenient to acquaint the Reader, that hee may attend them one quarter of an hour earlyer than the times noted in the Catalogue. In 2 or 3 Years more we may expect opportunitys of obſeruations, which will afford us ſuch a correction for the error, that the Numbers ſhall fail no more in them, than in the *1ſt.* whoſe Eclipſes have not yet differed aboue 3 minutes from the Calculation.

I giue you further herewith an obſeruation of the Lunar Eclipſe *Nouember* 30, 1685. made at *Liſbon* by my kind Friend Mr. *Henry Iacobs:* and another of my own of the Occultation of ♄ by the Moon, *March* the *31th.* this Year 1686: of which you haue publiſhed ſeueral forreign obſeruations already.

Tab-

Tabula Parallaxium *Jovis*

D	*Janua.* A G.	M.	*Febru.* A G.	M.	*Martii.* A G.	M.	*April.* A G.	M.	*Maii.* A G.	M.	*Junii.* S G.	M.	D
1	6	30	9	36	10	49	9	41	5	43	0	16	1
2	6	38	9	41	10	49	9	36	5	38	0	29	2
3	6	44	9	45	10	50	9	31	5	27	0	41	3
4	6	52	9	49	10	50	9	25	5	17	0	54	4
5	6	59	9	53	10	50	9	19	5	06	1	06	5
6	7	06	9	57	10	49	9	13	4	55	1	19	6
7	7	13	10	01	10	49	9	07	4	44	1	31	7
8	7	20	10	04	10	48	9	01	4	33	1	44	8
9	7	26	10	08	10	48	8	55	4	22	1	56	9
10	7	33	10	11	10	47	8	48	4	11	2	08	10
11	7	40	10	14	10	46	8	41	3	59	2	21	11
12	7	46	10	18	10	44	8	34	3	48	2	33	12
13	7	53	10	21	10	42	8	27	3	36	2	45	13
14	7	59	10	24	10	41	8	19	3	24	2	57	14
15	8	06	10	26	10	40	8	12	3	12	3	09	15
16	8	11	10	29	10	38	8	04	3	00	3	21	16
17	8	17	10	31	10	36	7	56	2	48	3	33	17
18	8	23	10	34	10	33	7	48	2	37	3	44	18
19	8	29	10	36	10	31	7	40	2	25	3	56	19
20	8	35	10	38	10	28	7	32	2	12	4	08	20
21	8	41	10	40	10	25	7	23	2	00	4	19	21
22	8	46	10	41	10	22	7	14	1	48	4	30	22
23	8	52	10	43	10	19	7	05	1	35	4	42	23
24	8	57	10	44	10	15	6	56	1	23	4	53	24
25	9	02	10	45	10	12	6	47	1	11	5	04	25
26	9	08	10	46	10	08	6	37	0	58	5	15	26
27	9	13	10	47	10	04	6	28	0	45	5	25	27
28	9	17	10	48	10	00	6	18	0	33	5	36	28
29	9	22			9	55	6	08	0	21	5	46	29
30	9	27			9	51	5	58	0 A	08	5	57	30
31	9	31			9	46			0 S	04			31

ad diem quemlibet Anni 1687.

D	Iulii. S G.	M.	Augu. S G.	M.	Sept. S G.	M.	Octob. S G.	M.	Novem. S G.	M.	Dec. S G.	M.	D
1	6	07	10	02	11	02	9	37	6	24	2	18	1
2	6	17	10	06	11	02	9	33	6	17	2	09	2
3	6	27	10	11	11	01	9	28	6	09	2	00	3
4	6	37	10	15	11	00	9	23	6	02	1	52	4
5	6	47	10	19	10	59	9	18	5	54	1	42	5
6	6	56	10	23	10	57	9	12	5	46	1	34	6
7	7	05	10	27	10	56	9	07	5	38	1	25	7
8	7	14	10	31	10	54	9	01	5	31	1	16	8
9	7	23	10	34	10	52	8	56	5	23	1	07	9
10	7	32	10	37	10	50	8	50	5	15	0	58	10
11	7	41	10	40	10	48	8	45	5	07	0	50	11
12	7	49	10	43	10	46	8	39	4	59	0	41	12
13	7	57	10	46	10	43	8	33	4	51	0	32	13
14	8	05	10	48	10	41	8	27	4	42	0	23	14
15	8	14	10	50	10	38	8	21	4	34	0	14	15
16	8	21	10	52	10	35	8	15	4	26	0	05	16
17	8	29	10	54	10	32	8	08	4	18	0 A	04	17
18	8	36	10	56	10	29	8	02	4	09	0	13	18
19	8	44	10	57	10	26	7	55	4	01	0	22	19
20	8	51	10	59	10	23	7	49	3	53	0	31	20
21	8	58	11	00	10	19	7	42	3	44	0	40	21
22	9	05	11	01	10	15	7	36	3	36	0	48	22
23	9	11	11	02	10	11	7	29	3	27	0	50	23
24	9	28	11	03	10	08	7	22	3	19	1	00	24
25	9	24	11	03	10	04	7	15	3	10	1	15	25
26	9	30	11	04	10	00	7	08	3	00	1	24	26
27	9	35	11	04	9	56	7	01	2	53	1	33	27
28	9	4	11	0	9	51	6	54	2	44	1	40	28
29	9	46	11	0	9	47	6	46	2	35	1	51	29
30	9	5	11	04	9	42	6	39	2	27	1	59	30
31	9	57	11	03			6	32			2	08	31

Catalogus Eclipsium Comitum Jovialium ubique Terrarum Anno in-

Januarii.					Februarii.					Martii.				
D.	H.	M.			D.	H.	M.			D.	H.	M.		
1	01	27	1	i	1	02	10	3	e	1	15	04	*	i
2	09	34	2	i		17	20	*	i		18	06	3 *	e
	19	55	1 *	i		18	20	4 *	e	2	05	27	1	i
3	07	23	3	i		21	51	1	i	3	19	25	2	i
4	14	22	1	i	3	09	04	2	i		23	56	1	i
5	22	50	2	i		16	19	1 *	i	5	18	26	1 *	i
6	08	50	1	i	5	10	47	1	i	7	05	05		i
8	03	17	1	i	6	22	21	2	i		6	43	4	e
9	12	06	2	i	7	05	16	1	i		8	44	2	i
	21	45	1	i	8	03	08		i		12	54	1	i
10	11	18	3	i		6	08	3	e	8	19	02		i
11	16	13	1	i		23	44	1	i		22	06	3	e
13	01	23	2	i	10	11	39	2	i	9	07	22	1	i
	10	41	1	i		18	13	1 *	i	10	22	02	2	i
15	05	09	1	i	12	12	41	1	i	11	01	52	1	i
	23	53	4	pen	14	00	56	2	i	12	20	20	1	i
16	14	39	2	i		7	10	1	i	14	11	40	2	i
	23	37	1	i	15	7	06	3	i		14	49	1 *	i
17	15	15	3	i		10	07		e	15	23	03		i
	18	14	3 *	e	16	01	38	1	i	16	02	06	3	e
18	18	05	1 *	i	17	14	14	2	i		9	18	1	i
20	03	56		i		20	07	1	i	18	00	39	2	i
22	07	01	1	i	18	11	11	4	i		3	47	1	i
23	17	12	2 *	i		12	32		e	19	22	16	1	i
24	01	29	1	i	19	14	35	1	i	21	13	57	2 *	i
	19	12	3 *	i	21	03	32	2	i		16	44	1 *	i
	22	11		e		9	04	1	i	23	03	03		i
25	19	57	1	i	22	11	05	3	i		6	07	3	e
27	06	29	2	i		14	06		e		11	13	1	i
	14	25	1	i	23	03	33	1	i		23	02		i
29	08	54	1	i	24	16	50	2 *	i	24	0	54	4	e
30	19	47	2	i		22	01	1	i	25	3	15	2	i
31	03	22	1	i	26	16	30	1 *	i		5	42	1	i
	23	10	3	i	28	06	07	2	i	27	00	11	1	i
						10	59	1	i	28	16	34	2 *	i
											18	39	1	i
										30	07	02		i
											10	08	3	e
											13	09	1 *	i

ſequente 1687 viſibilium, tempora Ingreſſuum illorum in 4s Umbram, & ab ea Emerſionum ſub Meridiano Grenovicano apparentia exhibens, Juxta Calculum *Jo. Flamſtedii* Math. Reg. & R. S. S.

Aprilis.					Maii.					Junii.				
D.	H.	M.			D.	H.	M			D.	H.	M.		
1	05	52	2	i	1	09	44	1	i	2	08	30	1	e
	7	37	1	i	3	04	13	1	i		21	59	3	e
3	02	06	1	i		5	33	2	i	4	02	58	1	e
4	19	10	2	i	4	22	41	1	i		7	54	2	e
	20	35	1	i	5	02	58	3	i	5	21	27	1	e
6	11	02		i	6	17	10	1	i	7	15	55	1	e
	14	08	3 *	e		18	50	2	i		21	12	2	e
	15	04	1 *	i	8	11	38	1 *	i	9	10	23	1 *	e
8	08	28	2	i	10	6	06	1	i	10	01	57	1	e
	9	33	1	i		7	07	2	i	11	04	51	3	e
9	17	00	*	i	12	00	35	1	i		10	29	2 *	e
	19	04	4	e		6	56	3	i	12	23	20	1	e
10	04	01	1	i	13	4	53	4	i	14	17	48	1	e
11	21	46	2	i		6	17		e		23	45	2	e
	22	30	1	i		19	03	1	i	15	16	41	4	i
13	15	02	3 *	i		21	24	2	i		19	57		e
	16	59	1	i	15	13	31	1 *	i	16	12	16	1 *	e
	18	08	3	e	17	08	00	1	i	17	05	55	3	e
15	11	04	2	i		10	42	2 *	i	18	06	44	1	e
	11	27	1	i	19	02	28	1	i		13	03	2 *	e
17	05	56	1	i		10	54	3 *	i	20	01	13	1	e
19	00	22	2	i	20	20	56	1	i	21	19	41	1	e
	0	25	1	i		23	59	2	i	22	02	21	2	e
20	18	54	1	i	22	15	24	1 *	i	23	14	10	1 *	e
	19	01	3	i	24	09	53	1 *	i	24	09	54	3 *	e
22	13	23	1 *	i		13	16	2 *	i	25	08	38	1 *	e
	13	40	2 *	i	26	04	21	1	i		15	38	2	e
24	07	50	1	i		14	51	3 *	i	27	03	07	1	e
26	02	19	1	i	27	22	49	1	i	28	21	34	1	e
	2	57	2	i	28	02	33	2	i	29	04	55	2	e
	10	56	*	i	29	17	17	1	i	30	36	03	1	e
	13	12	4 *	e	8 ⊙	22	46	4	i					
27	20	47	1	i	30	01	24		e					
	23	00	3	i	31	14	02	1 *	e					
29	15	14	2 *			18	36	2	e					
	15	16	1 *	i										

Julii.						Augusti.						Septemb.					
D.	H.	M.				D.	H.	M.				D.	H.	M.			
1	13	53	3		e	1	12	42	1		e	1	04	33	2		e
2	10	32	1		e	3	07	11	1		e	2	09	29	1	*	e
	10	38	4	*	i		17	58	2		e	3	22	48	3		i
	13	32	4		e	4	22	40	4		i	4	02	07	3		e
	18	13	2		e	5	1	40	1		e		3	59	1		e
4	05	00	1		e		1	52	4		e		17	53	2		e
5	23	29	1		e	6	06	40	3		i	5	22	28	1		e
6	07	32	2		e		9	56	3	*	e	7	10	55	4		i
7	17	57	1		e		20	09	1		e		14	21	4		e
8	17	52	3		e	7	07	17	2		e		16	58	1		e
9	12	26	1	*	e	8	14	38	1		e	8	07	13	2	*	e
	20	59	2		e	10	09	07	1	*	e	9	11	27	1		e
11	06	55	1		e		20	37	2		e	11	02	51	3		i
13	01	23	1		e	12	03	37	1		e		5	57	1		e
	10	07	2	*	e	13	10	42	3		i		6	10	3	*	e
14	19	52	1		e		13	58	3		e		20	32	2		e
15	18	38	3		i		22	06	1		e	13	00	26	1		e
	21	52	3		e	14	09	56	2	*	e	14	18	56	1		e
16	14	21	1		e	15	16	35	1		e	15	09	52	2		e
	23	25	2		e	17	11	05	1		e	16	13	25	1		e
18	08	50	1		e		23	15	2		e	18	06	54	3	*	i
19	04	38	4		i	19	05	34	1		e		7	54	1	*	e
	7	40	4		e	20	41	44	3		i		10	13	3		e
20	03	19	1		e		18	01	3		e		23	12	2		e
	12	43	2		e	21	00	03	1		e	20	02	24	1		e
21	21	47	1		e		12	35	2		e	21	20	54	1		e
22	22	38	3		i		16	47	4		i	22	12	31	2		e
23	01	53	3		e		20	05	4		e	23	15	23	1		e
	16	16	1		e	22	18	33	1		e	24	05	03	4		i
24	02	02	2		e	24	13	02	1		e		8	37	4		e
25	10	45	1	*	e	25	01	54	2		e	25	09	52	1		e
27	05	14	1		e	26	07	32	1	*	e		10	56	3		i
	15	21	2		e	27	18	46	3		i		14	16	3		e
28	23	43	1		e		22	03	3		e	26	01	51	2		e
30	02	39	3		i	28	02	01	1		e	27	04	22	1		e
	05	54	3		e		15	14	2		e	28	22	51	1		e
	18	12	1		e	29	20	30	1		e	29	15	10	2		e
31	04	39	2		e	31	15	00	1		e	30	17	20	1		e

Octobris.						Novembr.						Decembre.		
D.	H.	M.				D.	H.	M.				D.	H.	M.
2	11	49	1		e	1	14	01	1		e			
	14	58	3		i	3	08	26	1		e			
	18	18	3		e	4	04	15	2	*	e			
3	04	29	2		e	5	02	58	1		e			
4	06	19	1	*	e	6	21	26	1		e			
6	00	48	1		e	7	14	21	3		e			
	17	48	2		e		17	32	2		e			
7	19	17	1		e	8	15	54	1		e			
9	13	46	1		e	10	10	23	1		e			
	18	59	3		i	11	06	50	2		e			
	22	20	3		e	12	04	51	1		e			
10	07	07	2	*	e	13	11	15	4		i			
	23	11	4		i		15	04	4		e			
11	02	49	4		e		23	19	1		e			
	8	15	1		e	14	20	07	2		e			
13	02	44	1		e		18	20	3		e			
	20	26	2		e	15	17	47	1		e			
14	21	13	1		e	17	12	15	1		e	*Toto Decembre*		
16	15	42	1		e	18	09	24	2		e	Jupiter *latet*		
	23	00	3		i	19	06	43	1		e	*ſub Radiis*		
17	02	22	3		e	21	01	12	1		e	*Solis.*		
	9	45	2		e		22	17	3		e			
18	10	11	1		e		22	40	2		e			
20	04	40	1	*	e	22	19	39	1		e			
	23	03	2		e	24	14	07	1		e			
21	23	09	1		e	25	11	57	2		e			
23	17	37	1		e	26	08	35	1		e			
24	06	23	3		e	28	03	03	1		e			
	12	21	2		e	29	01	13	2		e			
25	12	06	1		e		2	14	3		e			
27	06	35	1		e		21	30	1		e			
	17	13	4		i	30	05	04	4		i			
	20	59	4		e		9	00	4		e			
28	01	39	2		e									
29	01	03	1		e									
30	19	32	1		e									
31	10	22	3		e									
	14	57	2		e									

Jovis loca Geocentrica

	Janu.		*Febru.*		*March.*		*April.*		*May.*		*June.*		
	♐		♐		♐		♐		♐		♐		
	G.	*M.*	*G.*	*M.*	*G.*	*M.*	*G.*	*M.*	*G.*	*M.*	*G.*	*M.*	
1	13	46	19	19	22	46	24 ℞	07	22	39	19	05	1
2	13	58	19	29	22	51	24	07	22	34	18	57	2
3	14	10	19	38	22	57	24	07	22	28	18	49	3
4	14	22	19	47	23	02	24	06	22	22	18	42	4
5	14	34	19	55	23	06	24	05	22	16	18	34	5
6	14	45	20	04	23	11	24	04	22	10	18	27	6
7	14	57	20	12	23	15	24	03	22	04	18	19	7
8	15	09	20	21	23	20	24	01	21	58	18	11	8
9	15	20	20	29	23	24	23	59	21	52	18	04	9
10	15	32	20	38	23	27	23	58	21	45	17	56	10
11	15	43	20	46	23	31	23	56	21	39	17	48	11
12	15	54	20	54	23	35	23	54	21	32	17	41	12
13	16	06	21	01	23	38	23	51	21	25	17	34	13
14	16	16	21	09	23	41	23	49	21	18	17	27	14
15	16	27	21	17	23	44	23	46	21	11	17	20	15
16	16	38	21	24	23	47	23	43	21	04	17	13	16
17	16	49	21	3	23	50	23	40	20	57	17	06	17
18	17	00	21	38	23	52	23	37	20	50	16	59	18
19	17	10	21	45	23	55	23	33	20	43	16	52	19
20	17	21	21	52	23	57	23	30	20	35	16	46	20
21	17	32	21	59	23	59	23	26	20	28	16	39	21
22	17	42	22	05	24	00	23	22	20	20	16	33	22
23	17	52	22	12	24	02	23	18	20	14	16	26	23
24	18	02	22	18	24	03	23	14	20	06	16	20	24
25	18	12	22	24	24	04	23	09	19	58	16	14	25
26	18	23	22	30	24	05	23	04	19	50	16	08	26
27	18	33	22	35	24	06	23	00	19	43	16	02	27
28	18	42	22	41	24	07	22	56	19	35	15	56	28
29	18	51			24	07	22	50	19	28	15	51	29
30	19	00			24	08	22	45	19	20	15	44	30
31	19	10			24	08			19	12			31

in diem quemlibet *Annii*. 1687.

D	*Julii.* ♐ G.	M.	*Auguſt.* ♐ G.	M	*Septem.* ♐ G.	M.	*Octob.* ♐ G.	M.	*Novem.* ♐ G.	M	*Dece.* ♑ G.	M.	D
1	15	40	14	17	15	47	19	40	25	27	2	02	1
2	15	34	14	17	15	53	19	50	25	39	2	16	2
3	15	29	14	17	15	59	19	59	25	51	2	29	3
4	15	24	14	17	16	05	20	10	26	04	2	43	4
5	15	20	14	18	16	11	20	20	26	17	2	57	5
6	15	15	14	19	16	17	20	30	26	29	3	11	6
7	15	11	14	21	16	24	20	40	26	42	3	25	7
8	15	07	14	22	16	30	20	51	26	55	3	38	8
9	15	03	14	23	16	37	21	01	27	08	3	52	9
10	14	59	14	25	16	44	21	12	27	21	4	06	10
11	14	55	14	27	16	50	21	23	27	34	4	20	11
12	14	51	14	29	16	58	21	34	27	47	4	34	12
13	14	48	14	31	17	07	21	44	28	00	4	48	13
14	14	45	14	34	17	14	22	55	28	13	5	02	14
15	14	42	14	36	17	21	22	06	28	26	5	16	15
16	14	39	14	39	17	28	22	17	28	39	5	29	16
17	14	36	14	42	17	36	22	28	28	53	5	42	17
18	14	33	14	45	17	44	22	40	29	06	5	57	18
19	14	31	14	49	17	53	22	52	29	19	6	11	19
20	14	28	14	52	18	01	23	03	29	33	6	25	20
21	14	26	14	56	18	09	23	14	29	46	6	39	21
22	14	25	15	00	18	18	23	26	29	59	6	53	22
23	14	23	15	04	18	27	23	37	0	13	7	07	23
24	14	21	15	08	18	35	23	49	0	26	7	21	24
25	14	20	15	12	18	44	24	01	0	40	7	35	25
26	14	19	15	17	18	53	24	13	0	53	7	48	26
27	14	18	15	21	19	02	24	25	1	07	8	02	27
28	14	17	15	26	19	12	24	37	1	21	8	18	28
29	14	17	15	31	19	21	24	50	1	34	8	30	29
30	14	17	15	37	19	31	25	02	1	48	8	44	30
31	14	17	15	42			25	14			8	58	31

Defectus Lunaris Ulissipponæ a Do. Jacobeo *Observatus Nov.* 30. 1686.

	H.	*M.*
Initium	8	02
Immersio	9	06
Emersio	10	50
Finis	11	57

Jovis a Luna tecti Observationes Grenovici habitæ a Jo. Flamsteedio *Math. Reg. Martii* 31. 1686.

	Temp. corr per hor. oscil *H.* *M.* S.	
Martii 31 ♃	9. 32. 30	♃ *s limbus tangebat limbum Lunæ lucidum, Mareotidis diametrum a termino ejus boreo.*
	33. 42	♃ *Totus tectus erat. Quantum per vapores horizontis & undulationem limbi valde turbidam, licuit conjicere.*
	10. 11. 12	*Differentia declinationem limbi Lunæ vere Australini & loci Ingressus, Tubo ped.* 8 *& Micrometro* 1546 = 12 *m.* 42 *sec.*
	30. 30	*Jovis particula emersérat, e regione realis limbi Mæotidis.*
	31. 36	*Jupiter totus liber.*
	35. 50	*Differentia declinationum centri Jovis, & limbi Lunæ Australini* 3436=28*m.* 5*s.*
	41. 40	*Repet.* 3585=29*m.*28*s.*
	44. 00	*Lunæ Diameter* 3906=32*m.*07*s.*
	45. 44	*Repet.* 3915=32*m.*11*s.*

Ac-